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## Methodological Schemes of Typology: The Case of the Middle Volga Region

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**Abstract:**

*The article deals with the history of iron arrowhead study at the level of typological schemes based on the materials of the Middle Volga region.*

*The task of the work does not include a detailed study of the objects themselves within certain types, only the typology schemes are considered. With a wide range of approaches in the study of arrowheads, each typological scheme has its advantages and disadvantages.*

*Despite a considerable accumulated material on the arrowheads and the growing number of narrowly dated archeological monuments from which they originate, most researchers in their work continue to rely on traditional schemes developed in the 60-ies and 70-ies of the XXth century.*

*There are also new modern approaches in the study of arrowheads. In this regard, it is interesting to trace the development of arrowhead study technique based on the needs and capabilities of archaeological science at different times.*

**Keywords:** Archeology, Middle Volga Region, Military Science, Arrowheads, Methods of Study, Systematization, Typology.

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## **1. Introduction**

The territory of the Middle Volga region in the Middle Ages is characterized by high dynamism of historical processes. Due to the scarcity of written information, numerous archaeological finds have become the main sources of evidence concerning the intensity of historical, cultural and technological achievement development.

Arrowheads are one of the most numerous "individual" items of archeology. They stand out from the mass of archaeological materials as they often become the only and the basic dating material to determine the time of an archaeological monument existence. In addition, the arrowheads are the source for the reconstruction of the weapons complex and the development of military techniques.

In recent decades, significant new material was accumulated, practically not introduced into scientific circulation, and its processing required the use of a particular system of description and systematization. The existing classical schemes of arrowhead attribution were not always suitable for new findings determination, and rather broad dating hampered the analysis. In addition, the arrowheads are far from the universal standard in general forms and, especially, in detail, which makes it practically impossible to create a single typology. The use of generalized descriptions complicates the detailed work with the primary source, because the products similar in form, but differing in detail may be referred to one type.

The article includes only those works in which there is a specialized system (scheme) of arrowhead systematization (typology) as a separate body of historical sources. The involvement of works where the arrowheads were mentioned in isolated cases or were analyzed in conjunction with other types of archaeological material was inexpedient.

All considered typological schemes were applied in respect to the iron arrowheads. There are no classical schemes for the description of bone arrowheads now. "A special approach to the study of bone objects has not been developed up to now" (Paltseva and Shakirov, 2012, p. 37), "they obviously imitate iron ones in form and processing ..." (Medvedev, 1966, p. 53).

## **2. Methodology**

The methodological basis of this work is the principle of historicism, implying the study and the interpretation of historical phenomena in dynamics and the interrelations with various processes and events, as well as an integrated approach that involves the systematization of all data. The latter consists in maximum engagement of historiographic information concerning the subject of this work within the Middle Volga region.

Each object (typological scheme) is analyzed and accompanied by an author's interpretation. Its place is determined against the background of the overall picture of development and the requirements of science respectively. All traditional methods for archaeological research were also widely used in the work: comparative-typological, chronological, statistical, cartographic method, the method of analogies and historiographic analysis.

### **3. Results**

One of the earliest works on the study of the arrowheads of the Middle Volga region as a separate body of archaeological (historical) sources was the work by Gening and Khalikov (1964) "Early Bulgarians on the Volga (Big Tarkhan burial ground)" issued in 1964 (Gening & Khalikov, 1964). This paper is devoted to the results of Big Tarkhan burial ground study. The authors conducted a scientific systematization of the arrowheads received from the burial. All tips (48 specimens) are petiolate ones. In terms of the feather cross section, they are divided into three arbitrary "types" (the term "type" is meant as conditional at present, as since the late 60s of the 20th century this term has been used for a more detailed description of arrowheads, at the level of feather shape or a point features: 1. flat arrowheads (38 specimens); 2. Three feathered (7 specimens); Faceted tips (5 specimens). Within each "type" the tips are divided into several varieties according to similar external features.

Thus, a successful systematization of the arrowheads was carried out, which allowed not only to group the objects, but also provided additional information on the Big Tarkhan burial ground. Even though in fact the systematization was carried out at the level of a feather cross section, and then the tips were combined into large groups according to similar characteristics, it satisfied the needs of the scientific community of that time. Considering a small number of subjects under study and the materials of one monument, it was not necessary to perform a more detailed separation into types (subtypes). It is impossible not to mention the scrupulous and detailed description of the places where the arrowheads were found in the closed complex, which makes this work very valuable and original.

The consideration of arrowhead study and systemization method of the Middle Volga at the level of typological separation will be natural and fair to begin with the work by Medvedev (1966) "Hand-throwing weapons" published in 1966. With the release of this fundamental work a new stage begins in the history of arrowhead study. In this Code the systematization of arrowheads at the level of typology was applied for the first time. The typology of the arrowheads was carried out based on extensive processed archaeological material of Eastern Europe, including the territory of the Middle Volga region. This work has also absorbed a huge number of archaeological, written, pictorial, ethnographic and other sources. All the iron tips were divided by Medvedev (1966) into "the segments – bush and petiolate ones (according to mounting).

According to the nature of a feather or a head cross-section, all arrowheads (bush and petiolate ones) are divided into three main groups: three-lobed, flat and faceted (armor-piercing). Each group of arrowheads is divided into the types by a feather or a point form. As the result of the arrowhead classification Medvedev (1966) found out that "a huge variety of their forms was not an accidental phenomenon or a simple whim of Old Russian blacksmiths. Different forms or types of tips corresponded to the specific purpose and requirements that were presented to them in each given period. The forms (the types) of arrowheads were perfected in close relationship with the development of various types of protective weapons, with the development of cavalry, with the peculiarities of hunting fur-bearing animals, poultry, etc." (Medvedev, 1966, p. 97).

The study of the arrowheads makes it possible to establish a chronological replacement sequence of some types by others, which makes it possible to use them as an important historical source for dating burials and settlements whose lifetime cannot be determined from other archaeological data" (Medvedev, 1966, p. 98). At the same time, the author noted that within the types there is a certain systematization by form, although a single sequence is not observed, there are significant differences in details and type variants.

The disadvantages of this scheme were revealed after a while with a quantitative growth of research objects – arrowheads and the appearance of monuments with exact dating. "The absence of an explicit standard and, thus, the multiplicity of arrowhead options which do not fit into this scheme, forced to classify them conditionally in a particular type or to stipulate them separately as "local types". The second drawback of the scheme was a fairly broad chronological framework for the existence of arrow tips of one type or another, although specific variants could be dated more narrowly" (Rudenko, 2003, p. 60). This work served as the model and the example for the researchers of the European part of Russia on the classification of arrowheads from regional (local) archeological monuments for many decades. It should be noted that most of the studies presented below on the systematization of the arrowheads of the Middle Volga region are based on the model of the typological scheme developed by Medvedev (1966), with minor changes or additions. Only at the beginning of the 21st century, in our days, the attempts are being made to develop new approaches to the study of arrowheads.

The next study on the analysis of historical sources - arrowheads was published in 1985. The generalizing work "The culture of Bilyar" edited by Khalikov (1985) was published in which the team of authors examines the Bulgarian tools and weapons of X-XIII centuries in detail. The issue of arrowhead classification accumulated in Bilyar is touched upon. In general, adhering to the principles proposed by Medvedev (1966), a slightly different classification system is offered: to consider the supposed functional purpose of arrowheads with the selection of types and options. In the section "Arms items" (the author of the section Khuzin) (Khuzin, 1985, p. 145), 280 iron arrowheads are considered. Khuzin (1985) divides all the arrowheads by

mounting shape into the following sections: A - socket, B - petiolate. According to the shape of a feather cross section, the arrowheads are divided into three main groups: I – three-lobed, II – flat, III – faceted (armor-piercing). Besides, each of these groups is divided into the types according to a feather shape, corresponding, as a rule, to a specific functional purpose. For smaller details, which sometimes have a chronological meaning, variants or varieties can be identified within the types.

The systematization of Bilyar arrowheads made by Khuzin (1985) is one of the first published works on the detailed classification of arrowheads from local (regional) archeological monuments of the Middle Volga region, in which "local" constructive features of this category of objects with many analogies were taken into account on the basis of traditional description schemes. Thus, the category of archaeological objects with narrower dating and not such "stretched" types as, for example, Medvedev's (1966) classification is introduced into science.

The systematization of the arrowheads (IX-XIII) from the monuments of Bulgarian period in the Middle Volga region was held by Kazakov (1991). In his work, which was the result of more than 25 years of research on the monuments of this region by Kazan archaeologists, - "Bulgar village of the X-XIII centuries in the lower reaches of the Kama River" (Kazakov, 1991), he performed the description of the monuments of the 10th-13th centuries integrally according to the accumulated archaeological materials. The arrowheads are not left without attention. He examined 63 arrowheads. All of them were petiole ones. The division occurs: according to the cross section of a feather into the subgroups: I – flat, II – oval or under rhombic, III – rhombic, IV – triangular, V – square.

According to the shape of a feather they are divided into five types in a profile: A – leaf-shaped, with the largest expansion in the lower half of the feather, B – diamond-shaped, with the largest widening in the middle of the feather, B – spade-shaped, with the largest widening in the upper half of a feather, G – five angled, D – V-shaped. The remaining details of the product shape – the shape of the shoulders, the ratio of the largest diameter of a feather to its length, and so on. – are expressed in varieties. The combination of these characteristics gives a type of products. It should also be noted that the author pointed to a certain conventionality of the terminological substantiation of types, which to a certain extent is reflected in the material. "With the forging of the arrowheads, each specimen necessarily acquires individual traits, in addition to the typical for the type and often also the features of another type, usually similar in shape" (Kazakov, 1991, p. 93).

In another work "The culture of the early Volga Bulgaria (stages of ethnic-cultural history) (Kazakov, 1992), based on the wide material obtained from the Tankeyevsky burial ground, a somewhat modified systematization of arrowheads was proposed. The arrowheads (over 320 specimens, of which about 60 are not determined by form) are divided into the groups according to their material: I – iron, II – bone; by the nature of fastening with a shaft: A – petiolate, B – socket; by the

cross-section of a feather: 1 – flat, 2 – three petal, 3 – rhombic, 4 – round; by the form of a feather: a – subrhombic, – subtriangular, c – lanceolate, d – spatulate, d – keeled three-pronged, e – subtriangular three-pronged, g – faceted, subulate, h – subulate. The combination of these characteristics forms types. The features of a feather shape are expressed in subtypes, denoted by the Latin letters x, y, z. The systematization proposed by Kazakov (1991; 1992), convenient for the work and perception, but at the same time, it has broad criteria within the typological divisions.

Another generalizing work in the study of a specific archaeological monument of the Bulgarian period of the Middle Volga region based on the results of field research was the series of books "The City of Bolgar". In 1996 they published the volume (the book) devoted to the study of metallurgists, smiths, foundry worker craft (Fedorov-Davydov, 1996). In the sketch by Savchenkova (1996) "Black Metal of Bolgar" the systematization of Bolgar arrowheads was performed. The classification proposed by Medvedev (1966) became the basis for systematization. All the arrowheads from the Bulgarian hillfort are petiole. By the nature of a feather or a tip cross-section, all the tips can be grouped into three main groups: A – faceted ones with a faceted hole; B – flat ones with a flat feather in the form of a narrow-elongated lens or a strongly flattened diamond and B – round ones, with a circular cross-section of a feather. By the number of feather faces the group A is divided into three subgroups: I – hexagonal, with a feather section in the form of a hexagon; II – tetrahedral ones, with the shape of a section in the form of a square, a tetrahedron, a rhombus; III – three-lobed, with three symmetrical lobes along a longitudinal axis.

Each of these groups, in its turn, is divided into types according to a feather form. Similar ones can be distinguished within the types – by smaller details. The systematization by Savchenkova (1996) is accompanied by a wide range of analogies and additional information related to the subjects under consideration. But the typological scheme has the inconsistency of the laid down principles.

The monograph in the form of catalog-reference book by Rudenko (2003; 2010; 2014) "Iron arrowheads of the VIII-XV centuries from the Volga Bulgaria" (Rudenko, 2003) became a significant stage in the study of the Middle Volga arrowheads. In the future, based on this work, a guide-determinant of archaeological material was published: "The medieval weapons of the Volga-Kama: iron arrowheads of the 7th-17th centuries AD" (the manual for practical work) (Rudenko, 2010). The author studied more than 1000 iron arrowheads from the vast territory of the Middle Volga region in these works.

These works demonstrate the method of attribution and scientific description of arrowheads. Rudenko (2010) applied a fundamentally new approach to study, which is based on the following: "the petiolate arrowheads are divided according to the design features into lobed (mainly welding) and solid (mostly forged) ones. Solid tips are divided according to the type of workpiece into two groups: faceted (A) and

round-toothed (B). The definition of the initial shape (of a workpiece) is made according to the section of the lower part of a feather and a neck section, as well as according to the features of a head / a feather forging. The shape of a forged blank largely determined the final shape of a product, as well as its secondary processing (the sharpening of the sides). The types are distinguished by a set of features: the base section, the shape of a tip, the shape details (the presence of thorns, feather sharpening, etc.), a stop and a neck. The numbering of types is continuous one (for example, A2), the variants are denoted by Arabic letters (for example, A2a)" (Rudenko, 2013, p. 254-255). Due to a good study of subjects, an extensive reference material, the available terminology, these works became a reference book (a manual) for museum workers and other scientific specialists during the description of arrowheads in funds and in everyday work.

Also, one of the largest specialized works on archeological subjects of armament of the European part of Russia of recent time was the thesis by Dvurechensky (2008) "Cold offensive weapons of the Moscow state (late XV – early XVII centuries)". The work considers the time of a single Russian centralized state formation and flourishing with a formed set of weapons. The author proposed an original system for the study of arrowheads. According to Dvurechensky (2008) the basis of each subject study is the creation of a passport-classifier of a type, which includes a multi-level typological description. "By the level we mean the description of the constructive-morphological, technological characteristics of the material of which the thing is manufactured.

The results of these descriptions are summarized in one passport, which carries the necessary and sufficient characteristics for the selection of a type that do not allow to deviate from the given conditions in the future and mix different types, and at the same time allow to select new types according to the degree of their detection" (Dvurechensky, 2008, p. 9). Thus, all the tips of Moscow Rus were divided into four classes according to the material: iron (508 specimens), bone (16 specimens), wooden (15 specimens) and bronze (1 specimen). By the method of mounting they belonged to two types of petiolate and socket ones, and to two groups: volumetric-faceted and flattened ones.

A continuous numbering of types is observed within the groups. 11 types of penetrator and 14 types of transitions to the fastening part of arrowheads were identified. A tip passport determines specific versions of a feather and a penetrator base during a type selection for greater clarity. All types of feather and shoulder base are divided into three groups according to the principle of transition from a penetrator to a fixing part of a tip: 1 – with a stop; 2 – with a weakly pronounced emphasis – an extension; 3 – without a stop (Dvurechensky, 2008, p. 157).

Each type of passport includes the cross section of a penetrator (8 varieties), the section of a feather and a fastening part base (9 varieties) and the section of a petiole (4 varieties) of an arrowhead. In addition to the constructive elements discussed

above the text part of the passport concerning the selected types of arrowheads includes weight-dimensional characteristics, the location, the number and the percentage of a selected type with other types, as well as the functional specialization. Based on the abovementioned typology, 20 types were identified (Dvurechensky, 2008, p. 159). Based on the results of type consideration Dvurechensky (2008) creates a functional typology, based on the nature of an arrowhead impact. "All types of arrowheads can be subdivided into armor-piercing (with piercing action and shock-cutting function), universal (universal and universal-dissecting) and dissecting (broad-splitting-dissecting and dissecting-cuts). A tip of arrows with spines forms a separate group" (Dvurechensky, 2008, p. 172-174).

After a detailed study of each subject and the typology of arrowheads, the results are quite seriously corrected, and the shortcomings of a typological scheme developed by Medvedev (1966) are exposed. Namely, the upper bounds of arrowheads (types) use are significantly increased, numerous conditional variations within types are reduced, the chronological frames are narrowed, etc. This work is the attempt of rigid criteria (classifiers) creation for the division of arrowheads by typological schemes. An interesting systematization appeared for many tips from different monuments. But when you work with a limited number of items from a monument, it is often not clear where to relate this or that "local" tip, because it does not fit into different types by description or similar types are absent.

Meanwhile, regarding the accumulation of significant archaeological material over the past decades, the works are published on the systematization of a small number of arrowheads limited by the territory of a single monument. Such works may be represented by the article from Valiulina (2010) with the results of arrowhead study from the Toretsky settlement. The author considers 35 arrowheads based on Medvedev's (1966) typological scheme. A more detailed work is conducted by Nabiullin (2011) in his general monograph "Djuketau - the city of Bulgars on Kama" (Nabiullin, 2011). All considered Dzhuketau arrowheads are petiolate ones. The author divides them into two groups: I – flat (lens, an elongated diamond), II – faceted (armor-piercing). The types are distinguished by a feather shape and its proportions (for flat ones), by the transition of a feather to a petiole, etc. "Group I – flat. They were divided into 8 types: triangular, keel-shaped, diamond-shaped, rhombic with a stop, a paddle-shaped cut, the slices in the form of a narrow-elongated spatula, Juchid cut, a sesame-leaf cut. Group II - faceted (armor-piercing).

They were divided into 7 types: with a massive battle head of diamond-shaped outlines and an under oval-rhombic section, with a neck, pyramidal ones with rhombic section, with a round neck, pyramidal ones with square section, with grooves on the faces of a battle head, the pyramidal ones with a massive short warhead of rhombic cross section, with the interception at a petiole, armor-piercing in the form of a dagger with a rhombic section, with interception, chisel-shaped, chisel-shaped (it is distinguished by a pointed end of the battle head in two longitudinal sections, the neck and the petiole have a round cross-section).



#### **4. Summary**

The emergence of the last two specialized works with a slight time difference in the ordering of arrowheads became natural because the traditional schemes developed in the sixties ceased to satisfy fully the modern needs in obtaining archeology objects from this category, more detailed ones in terms of dating and typological diversity, taking into account regional features of military affairs development. There was the need to improve (refine) the previously proposed typological schemes or to develop new approaches to the study of arrowheads.

#### **5. Conclusions**

Thus, despite an extensive use of arrowheads in various archaeological studies, most of them rely on the traditional scheme by Medvedev (1966) with minor changes and additions of the "local" types. At the beginning of the 21st century, two specialized papers (Dvurechensky, 2008; Rudenko, 2003) appeared on the arrowheads of the European part of Russia, where the authors proposed a new approach to the study of arrowheads.

Nowadays, a stable system of classification features is created, and their hierarchy has been established. The ethnic territorial differences in armament complexes, which included remote weapons and features of economic and cultural activities of the population, conditioned the variations and the individualization of products to such an extent that the creation of universal accounting schemes is hardly possible in the future (Rudenko, 2003, p. 63).

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